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NAVAL WAR COLLEGE
Newport, R.I.

WISHING AWAY THE PROBLEM: THE IMPACT OF IGNORING THE MODERN DIESEL SUBMARINE ON THE OPERATIONAL COMMANDER

By

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Lieutenant Commander, USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature:_____

16 May 2003

Abstract

The United States must accurately assess the impact of modern submarines on its ability to effectively conduct future military operations. Many of the world's submarine forces are utilizing state of the art submarine technologies to rapidly improve their capabilities. Among these nations are some of the United States' most probable future military competitors, including North Korea, Iran, and China. These ships, and the ability of U.S. antisubmarine warfare (ASW) systems to counter them, are a joint problem that needs to be confronted by both the Navy and the regional Combatant Commanders. Because an undersea threat can disrupt, delay, or severely limit U.S. and coalition response during a crisis, the role of ASW in achieving battlespace dominance is integral to the successful execution of any campaign. As a result, the operational commander must thoroughly integrate the submarine threat into his planning or painfully relearn the lessons taught by the success of twentieth century submarine warfare.

> First and foremost, we will need greater ASW [antisubmarine warfare] capability than we have today. At the top of my tactical problems in the Pacific is dealing with other submarines. And dealing with them is imperative to both our naval forces and our ability to enable the joint force's entry into the battlespace. [1]
>
> ADM Thomas Fargo
> Commander, U.S. Pacific Command

Introduction

Early in World War II, Germany's submarine force nearly defeated the combined forces of the United States and Great Britain.[2] Could a smaller submarine force achieve the same against America's modern military? State of the art submarine technologies are being installed in many of the world's submarine forces.[3] Forty-five countries currently have an operational submarine force, and these new technologies are rapidly improving their capabilities.[4] Among these nations are some of the United States' most probable future military competitors. North Korea operates 84 submarines.[5] Iran has seven submarines, including three Russian *Kilo* class SSKs.[6] China has a large, indigenous diesel and nuclear submarine program.[7] As the world's submarine forces become more capable, it becomes imperative that the United States accurately assesses the impact of these assets on future military operations and develops techniques to minimize the threat while the capabilities Admiral Fargo calls for above are developed and fielded.

The employment of new, capable, diesel submarines, operating in the littoral is a joint problem that needs to be confronted by both the Navy and the regional Combatant Commanders. As then Chief of Naval Operations, ADM J. M. Boorda stated in his memorandum to Gen. J. Shalikashvili, Chairman of the Joint Chiefs of Staff:

> [ASW will] preclude significant disruption by hostile submarines to the execution of the campaign. Over 90 percent of the material required to support the

> campaign arrives by sea. Since an undersea threat can disrupt, delay, or severely limit our response or increase the cost to U.S. and coalition forces, the role of ASW in achieving battlespace dominance is integral to the successful execution of any campaign…. [ASW is] a critical force enabler....[8]

The ability of a diesel submarine to effectively execute sea denial in critical sea lines of communications provides what may be an exploitable critical weakness in the U.S. national military strategy. Sovereignty issues will continue to limit the number of overseas bases and the size of permanently deployed overseas forces. Though personnel can be rapidly flown from their garrison positions in the United States, their equipment almost certainly will flow by sea.

ASW also enables follow-on war fighting actions. "No other single weapon available to the world's regional powers today can derail a modern military campaign so totally and rapidly as a submarine. Nations have learned and relearned this lesson with regularity throughout the twentieth century."[9] Any sustained, major regional conflict will require the joint effort of all of the services. Each service will, in turn, require substantial resupply from sea. This resupply requires effective sea control. The disruptive impact of submarines threatening the sea lines of communications will profoundly impact all the services.

In 1997 the U.S. Navy identified a decline in its ASW proficiency. The causes of the decline were numerous, but an aggravating facet was the availability and proliferation of advanced submarine technologies.[10] Admiral Fargo's June 2001 comments (above) reiterated the concern with our ASW proficiency. Testifying before the House Armed Services Committee in April 2003, Vice Admiral John B. Nathman, Deputy Chief of Naval Operations, stated, "ASW remains a challenging mission area, particularly in the shallow water littoral regions populated by modern, quiet submarines."[11] The Navy has

developed a roadmap to improve, but there is no panacea in the near future that will make the oceans transparent. If this is true, as it clearly seems to be, the operational commander must thoroughly integrate the submarine threat into his planning or painfully relearn the lessons taught by the success of twentieth century submarine warfare.

The Historical Context

Significant historical context exists upon which to base the thesis that failing to account for the asymmetric threat posed by a modern submarine force can place major campaigns in jeopardy and negate the influence of a superior navy by denying effective sea control. The Battle for the Atlantic, the impact of the U.S. Submarine Force on the ability of the Japanese Imperial Navy and Army to wage war, and the more recent Battle for the Falkland Islands are but some of the possible examples.

In the Battle for the Atlantic (or more properly put, the combined Atlantic Campaign) Admiral Karl Doenitz's German U-boat fleet very nearly strangled the allied war effort in Europe. The United States Navy had done little to prepare for the U-boat offensive prior to the beginning of World War II. Prewar disarmament treaties, isolationism, the Depression, and insufficient resources all contributed to the lack of both effective ASW doctrine and platforms.[12] As a result, by the end of July of 1942, German U-boats had sunk 519 ships (2,800,000 tons in total) in the U.S. area of responsibility in the Atlantic,[13] representing a remarkable 90 percent of all combat losses at sea for the period.[14] "This was a phenomenal and unprecedented episode in the whole history of warfare – a major and potentially decisive victory being scored by a tiny force of submarines."[15] Demonstrating the true efficiency of Doenitz's submarine operations, General George C. Marshall, Chief of Staff of the United States Army, expressing his

concern over the shipping losses and the U.S. Navy's apparent inability to stem the U-boat assault, wrote to Admiral Ernest King, Commander in Chief U.S. Fleet:

> The losses by submarines off our Atlantic seaboard and in the Caribbean now threaten our entire war effort…. Of the 74 ships allocated to the Army for July by the War Shipping Administration, 17 have already been sunk…. Twenty percent of the Puerto Rican fleet has been lost. Tanker sinkings have been 3.5 percent per month of tonnage in use…. I am fearful that another month or two of this will so cripple our means of transport that we will be unable to bring sufficient men and planes to bear against the enemy in critical theatres to exercise a determining influence on the war.[16]

Doenitz was succeeding. He had employed the asymmetric capabilities of his submarine force so effectively as to place the outcome of the war in Europe in doubt.

It was not until the U.S. Tenth Fleet was established that a unified and coherent approach for combating the U-boat threat was developed. Admiral King, acting as the Commander of the Tenth Fleet, built upon the British Admiralty's ASW experiences and unified the efforts of U.S. ASW research and intelligence agencies. Utilizing the combined results of these agencies, he effectively and exclusively controlled the allocation and employment of all antisubmarine forces in the Atlantic, including the Atlantic Sea Frontier Commands, Army Air Force long and very long range aircraft, auxiliary escort carriers, escort ships and submarines.[17] Leveraging the allies' ability to decrypt German submarine communications, these forces were able to defeat the submarine threat. As an example, the Tenth Fleet recognized that the German reliance on refueling submarines represented a critical vulnerability in the German U-boat operation. Without the refueling submarines, the U-boats were limited to an operating range of 500 to 600 nautical miles, significantly less than Doenitz required to execute his major operational plan. The rapid, effective use of the operational intelligence gained from intercepted German communications, coupled with the unity of command afforded by the

creation of the Tenth Fleet, eventually enabled allied forces to sink 18 of the 19 resupply submarines employed by the Germans.[18] The losses significantly disrupted Doenitz's operations and contributed to the allies regaining sea control in the Atlantic.[19]

By contrast, the Japanese did not develop a successful mechanism for combating the U.S. submarine threat in the Pacific. As had the Americans, the Japanese failed to recognize the potential impact of the submarine threat and as a result never developed adequate forces or tactics to defeat it.[20] As an island nation, Japan was wholly dependent upon her sea lines of communications to prosecute the war. As the empire expanded, this dependence grew. Without control of the sea, Japanese forces were destined for defeat in detail. Japan's war plan hinged upon control of the sea to tie together the elements of its national strength.[21] Utilizing the interior lines of communication that Japan's conquests afforded it throughout the South Pacific, Japanese forces would establish and support a defensive perimeter to counter any U.S. offensive. For this, the Japanese military ultimately failed to appreciate the threat of submarine warfare and the submarine's unique ability to operate beneath the surface of a sea that Japanese forces otherwise controlled.[22] Thus, the U.S. submarine force, despite spending much of 1942 overcoming poor tactics and faulty torpedoes, was able to effectively execute sea denial.

At the beginning of the war, the Japanese Naval General Staff had placed the responsibility for shipping protection in the hands of its Operations Division with a one officer billet.[23] In post war reviews, Japanese Imperial Navy Captain Atsushi Oi suggests that the failure in ASW was largely because the Navy disregarded the importance of the problem.[24] It was not until April 1942 that Japan stood up it first two convoy escort groups whose forces were wholly inadequate.[25] By November 1943, the losses had

become so overwhelming that the Combined Fleet was finally forced to establish the Grand Escort Command in the attempt to gain some of the advantages that Admiral King had belatedly achieved with the Tenth Fleet.

So, what was the cost to the Japanese war effort of failing to adequately account and plan for the submarine threat? In the spring of 1943, the 70 fleet boats on patrol sank on average 100,000 tons per month (based on post war reconstructed records).[26] After the successful invasion of the Marianas, patrolling out of Guam and Saipan, the U.S. submarine fleet imposed a virtual blockade on Japan. The Imperial Navy ran out of oil to support fleet operations and the Imperial Army gasoline for its aircraft and divisions. When the full extent of major submarine operations in the Pacific became clear after the war, many historians concluded that the invasions of the Palaus, the Philippines, Iwo Jima, and Okinawa, and even the dropping of the atomic bombs were unnecessary.[27] Although this position may be extreme, it is clear that as a minimum, the Japanese failure to adequately account for the submarine threat had a profound impact on the military's ability to execute its campaigns and major operations, significantly contributing to the ultimate defeat of the Japanese Empire.

Some might argue that it is inappropriate to draw a parallel between the unrestricted submarine warfare typical of World War II and the modern day threat, that modern systems and capabilities have fundamentally altered the threat posed by submarines, and that the limited conflicts the U.S. will most likely face preclude the attrition warfare exemplified by submarine operations in World War II. The Falkland crisis provides perhaps the best opportunity to evaluate whether World War II's lessons can be applied to today. At first glance, it might appear that the British task force faced

few problems as a result of Argentina's small submarine force, but almost certainly this is not the case. Of Argentina's four submarines, only two were operational in support of the war and only one, a German built Type 209, the ARA *San Luis* (S 32), conducted operations against the British task force (the other, a U.S. built Guppy class, was severely damaged after delivering troops and supplies to South Georgia Island). Despite the disadvantages of a newly assembled, poorly trained crew, the *San Luis* successfully conducted an 800-mile, seven-week patrol against the modern, alerted British task force consisting of two British ASW aircraft carriers, 15 frigates and destroyers and their accompanying ASW aircraft, and several submarines. During this time, *San Luis* conducted three torpedo attacks, two of which were evaluated after the war to have been valid.[28] When asked after the conflict why the valid attacks were unsuccessful, the commanding officer of the *San Luis*, Commander Fernando María Azcueta, stated that problems with *San Luis*' fire control system forced him to fire his torpedoes manually and, equally importantly, that the problem was easily corrected during a two-week port visit.[29] Further compounding his difficulties, Azcueta fired his torpedoes from too deep, contrary to the express guidance provided by the German manufacturer.[30] Put simply, a minor material failure coupled with poor training was all that stood between the *San Luis* and the sinking of two of the Royal Navy's front line warships.

As can be seen, the British were fortunate not to have lost a ship to a submarine. The Argentineans were able to safely employ a moderately proficient, modern diesel submarine against a capable, alerted British task force. This was true despite the fact the British Navy brought significant ASW assets to bear, routinely conducted ASW training in support of its NATO commitments, and employed of over 200 pieces of ordnance.[31]

The British never detected, tracked or successfully engaged the *San Luis*. It is impossible to say how the outcome of the conflict would have been changed had the *San Luis*' torpedoes been successful. What is known is that of Argentina's naval forces, only the submarines truly possessed the ability to turn the British fleet. Had the Argentine submariners successfully sunk a few key naval units or resupply ships, the British would have faced a significantly more difficult task.[32]

Therefore, the lessons of World War II seem to still apply. The submarine provides a uniquely effective asymmetric threat and ASW is force intensive, difficult, and requires time and dedicated forces to be successful.

Operational Factors

Given this historical background, is the submarine more than just the Navy's problem? The capable, threat submarine has an impact on all of the operational factors of war – space, time, and force. As such, though ASW is a Navy core competency, it must also be a major planning consideration for the theater and operational commander. To obtain the freedom of action required to succeed, the operational commander will have to adjust his balance of space, time, and force to compensate for the threat. The lack of an opposing submarine during Operations Desert Storm and Iraqi Freedom may lead one to assume that this is not the case. That would be a mistake, as the opposite conclusion is more appropriate. Ninety-five percent of all supplies for Operation Desert Storm arrived by sea.[33] Though the numbers are not yet available for Operation Iraqi Freedom, it is reasonable to assume they will be very similar. Coalition forces were indeed fortunate not to have had to face the obstacle an Iraqi submarine would have presented to the flow of forces into areas as restricted as the Strait of Hormuz and the Persian Gulf.

Starting with the publication of "…From the Sea" in 1992, the Navy has made clear its belief that the battle of the future will be fought in the Littoral. This emphasis was reinforced in 1994 with "Forward…From the Sea" and built upon in 2003 in "Sea Power 21." The Marine Corps stated it succinctly in "Operational Maneuver from the Sea."

> Representing a relatively small portion of the world's surface, littorals provide homes to over three-quarters of the world's population, locations for over 80 percent of the world's capital cities, and nearly all of the marketplaces for international trade. Because of this, littorals are also the place where most of the world's important conflicts are likely to occur.[34]

This, coupled with a national security policy based on forward operations, clearly implies that future combat will take place in distant, frequently shallow waters where freedom of maneuver is limited by coastlines and where sea lines of communication may transit through choke points and narrow approaches.

The conventionally powered attack submarine is ideally suited for this littoral environment.[35] The shorter distances mitigate a diesel submarine's limited speed and endurance. The complex water mass, currents, greater shipping noise, and bottom interference render acoustic search substantially more difficult. Because reliable detection and classification is still a largely unsolved problem, a small, slowly moving diesel has the decisive advantage, especially when operating in shallow water with its attendant clutter and high false contact rates.[36] Furthermore, the proximity to shore and the resultant surface-to-air and surface-to-surface missile threat make the use of air and surface ASW forces more dangerous.

Recent experience has also demonstrated that littoral operations, be they in a regional war or peace-keeping operations, emphasize extended deployments in a

particular operating area, from which capabilities such as carrier air strikes, tomahawk strikes, and Marine Expeditionary Forces can best be employed.[37] The limited space and operating areas, chokepoints, and the attendant restrictions on freedom of maneuver make it easier to predict the routes and operations of U.S. forces and significantly reduce the targeting problem of the submarine.[38] These restrictions might well enable a submarine to sink arriving Maritime Prepositioning Ships, and thus achieve the operational objective of placing a temporary halt on strategic sea lift, much as the German destruction of the allied convoy PQ-17 in July 1942 led to the suspension of all shipping to Russia until November 1943.[39]

The realities of operating in the littorals will force the joint force commander to answer difficult questions. Where is the oceanography most likely to support effective ASW? Can operations be shifted to these more defensible areas? Does adequate sea control exist to allow for the entry of an Amphibious Strike Group and their staging at a marshalling area or must a landing be delayed? Should forces be rerouted or an alternate forward staging base be established? And most importantly, can these problems be mitigated through the trade off of force and time? The question is not whether U.S. forces can establish sea control, but at what cost and in what timeframe.[40]

ASW is inherently a time intensive operation. "[It] cannot be accomplished swiftly, no matter how overwhelming the forces."[41] The time required to develop a degree of confidence that threat submarines are not present is a function of the size of the space to be searched, the oceanography of the area and the stealthiness of the threat. This is compounded by the fact that the third world submarine will undoubtedly have the advantage of a better understanding of the oceanography and bottom topography in the

area.[42] During the period the area is being sanitized, all other maritime activity will have to stand in line and wait. This, while an anxious American public, conditioned to quick results, is waiting for the full weight of the American military to be brought to bear on the enemy.

> Delay has severe political effects. Enemy submarine opposition can make the United States appear impotent: it may be impossible to conduct other maritime operations until the submarine threat is reduced or eliminated.… In a conflict with less than a superpower, public or political patience will run thin concerning losses or delays by submarines. The magnitude of the political catastrophe arising from the torpedoing of an aircraft carrier [or a large Amphibious ship] in a limited conflict can hardly be overestimated.[43]

Likewise, the delays provide the enemy time to consolidate their gains, entrench and resupply their forces, and prepare for the arrival of U.S. or coalition forces.

> A delay of several weeks during the [beginning] phase of an MRC [major regional contingency] might not be a war stopper all by itself, but it is important to understand the consequences for current time phased force deployment data (TPFDD) list timelines, which assume closure of millions of square feet of pre-positioned sealift within the first two weeks of the start of an MRC. This would transform a rapid deployment into a slow one, throw the deployment timelines of all services askew, and open a window of indeterminate size at the outset of a conflict in which the enemy can operate unmolested…[44]

Thus the submarine will slow the entire battle tempo.

ASW also is inherently force dependent. As was demonstrated in the Falklands, although the threat may encompass only a small number of submarines, a large force will be needed to counter them. To increase the enemy submarine attrition rates, the Joint Force Commander will need to call upon already over-tasked surface and submarine forces. This will come at the expense of other missions: traditional gunfire support, tomahawk cruise missile strikes, or the new task of providing defense against theater ballistic missile attack.[45]

Complicating this problem, the submarine threat has developed many of the characteristics typical of the traditional "Fleet in Being." As such, assets will be tied to defending the fleet from the ASW threat throughout the conflict. Even in the best of circumstances it is difficult to determine accurately the number of submarines that a country has underway. Many countries have developed elaborate techniques to mask the actual location of their submarines, building enclosed graving docks, covered dry docks, and even submarine tunnel facilities. This, coupled with the challenges inherent in classifying submerged submarines and as a result determining what, if anything, was actually engaged make it extremely unlikely that U.S. forces will ever be able to determine with a high degree of accuracy whether all enemy submarines have been eliminated. Lacking this ability, the Joint Task Force Commander will have to continue to dedicate significant forces towards countering the potential threat for the duration of the conflict.

The Counter Argument

At this point it is prudent to take a closer look at the arguments of those who would say that the third world submarine threat has been overstated and that the systems and skills developed through decades of countering the hundreds of Soviet cold war submarines are more than sufficient to deal with the threat posed by a few submarines in the hands of an isolated rogue nation. These arguments tend to revolve around three basic premises: third world submariners do not have the training, tactics, and experience required to be successful; third world nations do not have the military industrial complex required to support an effective submarine force; and the equipment available on the open market is not of sufficient quality to present a real risk to the U.S. Navy and U.S. military

operations. Using Iran as an example, do these arguments hold up in light of real world experience? Does the Iranian Navy, following the acquisition of three Russian built, conventionally powered 877EKM export variant *Kilo* class submarines, represent a real threat to sea control for U.S. forces?

Iran purchased these ships in the 1990s. The first was delivered in November 1992, the second in August 1993, and the third in January 1997. Each hull came complete with training, technical support, and weapons.[46] The ships were initially operated under Russian flag with combined Russian/Iranian crews.[47] In just a short period, Iran was able to integrate its submarine force into fleet operations. In 1995 an Iranian *Kilo* participated in its first full scale naval operations. Soon thereafter, they reportedly successfully test fired both advanced wake-homing and wire-guided Russian torpedoes.[48] The third world submarine does not need to master all the missions required of a first world SSN to be a successful threat to the United States' ability to establish sea control. The limited capabilities demonstrated by Iran during these exercises confirm that it already possesses sufficient submarine based offensive power to place sea control in the vital Strait of Hormuz in jeopardy.

Simplifying the third world training issue, a successful, small submarine force can be built upon an extremely small cadre of talented officers. Further, one man, the submarine commanding officer, can have an enormous impact on the combat effectiveness of his ship.[49] For example, the Royal Netherlands Submarine Service, one of the finest in the world, consists of only 400 officers and enlisted personnel.[50] In the U.S. submarine force, LCDR Dudley "Mush" Morton, the young and aggressive Commanding Officer of the World War II submarine USS *Wahoo* (SS 238), is largely

credited for rewriting existing peacetime submarine tactics and creating the successful ones that enabled the U.S. submarine force to become a major enabler of victory in the Pacific.[51] It is naïve and dangerous to assume that potential third world adversaries such as Iran do not have individuals with the courage, ambition, and intellect to do the same.

Iran did have significant difficulties developing the infrastructure required to support its submarine force. Initially, the submarine main storage batteries were unable to withstand the higher temperatures typical of the Persian Gulf. Other significant material problems also developed.[52] More importantly, however, the Iranian Navy appears to have been able to overcome the material issues and to build a base to support submarine upkeep and repair. They are now credited with the ability to surge deploy all three units or to maintain a near continuous at sea presence with at least one ship.[53]

To question the quality of the submarines, torpedoes, missiles, and fire control systems available on the world market is to ignore the economic realities of the post cold war weapons trade. "Modern non-nuclear submarines are both better than their predecessors and more widely available as defense industries that served their home markets during the Cold War now struggle to use exports to stay alive."[54] As already stated, the Iranian *Kilos* came complete with modern Russian torpedoes. Also available on the open market are the 200 knot Shkval submarine launched rocket torpedo,[55] air independent propulsion systems from Germany and Sweden,[56] and submarine launched versions of the French Exocet and soon, the Chinese C801 anti-ship missile systems.[57] Other advanced weapons systems are also likely soon to be on the market. As the world's arms manufacturers continue to market these systems, the U.S. military must plan on encountering them as it attempts to establish and maintain sea control.

Recommendations

In light of the threat, the realities of limited defense dollars, and the multimission requirements of U.S. ASW assets, what can the Combatant Commanders and their subordinate JTF Commanders do to mitigate the impact on U.S. operations? While force structure and the allocation of sufficient budgetary resources are certainly a part of the answer, there are clearly other avenues that need to be addressed. The U.S. Navy will not soon again have the 100 SSNs, squadrons of maritime patrol aircraft, ASW variant of the S-3B Viking, and dedicated surface assets which were used to win the cold war ASW battle. The reality of today is one of a smaller force, where each asset is responsible for simultaneously executing numerous missions. Commanders will need to plan accordingly and utilize many aspects of national power and operational art to counter the threat.

The U.S. military must first recognize the potential impact of the problem. In the limited regional contingencies the U.S. is most likely to face, ASW "is the most challenging single task in naval warfare."[58] The very fact that U.S. national military strategy relies so heavily upon freedom of maneuver at sea, will force those countries that wish to counter our influence to pursue submarine technologies.[59] The asymmetric threat presented by the proliferation of conventionally powered submarines will present significant challenges to establishing sea control and raise the costs of future conflicts. In the same respect that the Navy enables the joint force to enter the battle space, ASW enables the Navy. In smaller contingencies, where U.S. vital interests are not clearly at stake, even a single failure with its resultant loss of life and equipment may be too high a cost to pay.[60] In a major regional contingency, the Combatant Commander will have to

appropriately sequence his force flow to allow assets the dedicated time required to identify and counter the threat. Logisticians of all forces will need to understand the sequencing requirements and build them into the TPFDD. Countering the threat will take time and is the first step in a successful campaign in the littorals.

The proliferation of submarine technologies should be addressed at the national level. Diplomatic and economic pressures should be brought to bear to limit the spread of advanced submarine technologies. Though it is unlikely that countries such as Russia, France, and Germany will stop the international sales of their submarine technologies, the proliferation to "Axis of Evil" countries, countries that promote terrorism, unstable regimes, and those who demonstrate the desire to use force to achieve their national objectives can be limited. To fail to do so will almost guarantee that U.S. and coalition forces will soon be forced to confront a small diesel submarine force capable of laying in wait to launch advanced torpedoes and anti-ship cruise missiles with ranges in excess of 200-nautical miles.

The development of ASW competencies should be an integral part of the Theater Security Cooperation Plan. Many of our closest allies operate diesel submarines in areas very similar to where future conflicts might take place. Engagement should be used to leverage off both their understanding of diesel employment and to generate experience operating against quiet, diesel submarines in the forward deployed littorals. Realistic training conducted in the same or similar ocean environments to that which a conflict might take place is perhaps the single most important effort that can be used to improve U.S. capabilities.

The operational commander can utilize many of the operational functions at his disposal to help minimize the threat. Operational intelligence will provide critical details on submarine limitations and operating areas. When coupled with an effective operational deception plan, submarines can be lured to sea lines of communication that will not be used. Using the Korean area of operations as an example, an effective operational deception might draw submarine forces toward the Tsushima Strait (southern entrance to the Sea of Japan) so that forces can flow unimpeded through the Tsugaru Strait (northeast entrance to the Sea of Japan). In the ideal situation, the commander could call upon the use of operational fires to eliminate the submarine threat prior to the sortie of the ships from their operating bases.[61]

Conclusion

A submarine's unique capabilities provide it the unparalleled ability to exercise sea denial against a modern navy. History provides numerous examples of the impact of failing to adequately account for this threat. The proliferation of submarines may delay or even deny the United States access to vital regions of the world, or may make the cost of access greater than the U.S. public is willing to accept or than the objectives justify. The ASW threat can be mitigated, but only if adequately accounted for by all levels of command and during all stages of planning. To wait until ASW is purely a tactical issue is to endanger the success of the campaign.

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[61] This is probably a remote possibility. In most likely scenarios, the build up to hostilities will take place over a sufficient amount of time and sufficient warning will exist to ensure potential adversaries can sortie their fleets. The use of operational fires for the purpose of destroying a submarine threat generally will only be possible when operational/tactical surprise can be achieved. Regardless, fires should be utilized to destroy facilities utilized to resupply or rearm submarines returning from combat.

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